

## **CDF ASD Crate Repair Procedure**

This procedure describes how to repair CDF ASD Crates or the cards in them.

### **Approvals:**

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(CDF Department Head)

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(Date)

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**1.0 Controlled Copies of this procedure.**

Copies of this procedure are located in :

1. CDF Department Office
2. CDF Operations Electrical Group Leaders Office
3. CDF Control Room

All other copies will be marked, "INFORMATIONAL USE ONLY"

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## **2.0 The Procedure**

**If you are not sure about any of the following instructions in the least bit call or get help from an expert.**

1. Obtain permission to turn off the ASD crate or crates, from the CDF Scientific Coordinator (ext. 2079).
2. Turn the ASD crate or crates power supplies off. These will consist of 2 F-type power supplies and 2 G-type power supplies for each crate except the CMUP/CMEX crates which have 4 C type power supplies. **If you can not find the right power supplies ask for help from an expert.**
3. Turn the 400Hz circuit breakers off for the ASD power supplies. **If you can not find the right circuit breaker's ask for help from an expert.**
4. Tag out the breaker's following lock out / tag out procedures in **Fermilab ES&H Manual.**
5. Go back to the ASD crate or crates and measure the DC input voltage on the backplane of the crate, making sure the ASD crate or crates is not powered.
6. Unplug the ASD crate or crates cooling fans if you are going to have your fingers near them. **If you can not find the right plugs ask for help from an**

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**expert.**

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**Only after all the above steps are done can maintenance begin on the ASD crate or crates.**

7. Perform work needed to be done on ASD crate or crates.
8. When work is finished, remove lock and tag outs from circuit breakers.
9. Plug the ASD crate or crates cooling fans back in where you unplugged them.
10. Obtain permission to turn on the ASD crate or crates, from the CDF Scientific Coordinator (ext. 2079).
11. Turn the 400Hz breaker on.
12. Turn the ASD crate or crates power supplies back on.
13. Check DC input voltage on the backplane of the crate, making sure the ASD crate or crates has the correct voltages. **If you are not sure of the correct voltage settings check with the experts for the particular ASD crate or crates settings.**
14. When all crates are back on inform the CDF Scientific Coordinator (ext. 2079).

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15. If there are any problems or questions about what you are doing call the appropriate expert.

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**3.0 Checklist**

NONE

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**4.0 Deviations from the Procedure**

NONE



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## **5.0 Required Training and Authorized Training Personnel**

You must go through this procedure with an instructor and demonstrate that you have a good working knowledge of it.

The training must be documented on a standard Fermilab Training Form and the completed form must be inserted in the CDF Department Office copy of this procedure.

### LIST OF AUTHORIZED INSTRUCTORS FOR THIS PROCEDURE:

<u>Name</u>	<u>I.D.#</u>
Keith Schuh	2282
Mark A. Knapp	5384

All are qualified because of their working knowledge of CDF.

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## **6.0 Training Materials**

Section 2.0 of this procedure, a Fermilab training sheet and a walk thru of this procedure.

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## **7.0 Trained People for this procedure**

The following people are trained to work on this hardware.

Keith Schuh, Mark A. Knapp, Jim Shallenberger, Bob Gatzel,  
Bob Wagner, Bill Foster, Morris Binkley, Hovannes Keutelian,  
Aseet Mukherjee.

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**8.0 References and Supporting Documentation**

NONE